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EXAMINER	
IM, JUNGHWA M	
ART UNIT	**PAPER NUMBER**
2811	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/942,245	JIANG, TONGBI	
	Examiner	Art Unit	
	Junghwa M. Im	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,19-24,26-41 and 44-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,19-24,26-41 and 44-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08/29/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16, 19-24, 26-41 and 44-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 5,864,178), hereinafter Yamada in view of Hoge et al. (US 4,388,132), hereinafter Hoge.

Regarding claim 1, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 2-4, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 5, Yamada discloses the wetting agent layer reduces surface tension of the active surface throughout the specification especially in col. 20, lines 34-65. Furthermore, it is noted that the coupling layer of Hoge is comprised of the identical material to the one in the instant invention, therefore the silane-based layer also having surface tension of the active surface reduced.

Regarding claim 6, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface;

a substrate (202) having an upper surface;

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting

agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 7-9, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 10, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface;

a substrate (202) having an upper surface;

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial

degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 11-13, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 14, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a circuit board) having an upper surface having a plurality of circuits thereon;

a plurality of bumps (203) connecting said plurality of bond pads on said active surface of said semiconductor device to said plurality of circuits on said upper surface of said substrate;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial

degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claim 15 and 19, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 16, Fig.54 of Yamada shows an additional wetting layer on the upper surface of the substrate (208; col. 56, lines 22-63 and col. 17, lines 53-59).

Regarding claim 20, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface;

a substrate (202) having an upper surface;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer).

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claim 21 and 22, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 23, Fig.54 of Yamada shows a semiconductor assembly comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a circuit board) having an upper surface having a plurality of circuits thereon;

a plurality of bumps (203) connecting said plurality of bond pads on said active surface of said semiconductor device to said plurality of circuits on said upper surface of said substrate;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer).

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claim 24, Fig.54 of Yamada shows the underfill material substantially fills the gap between the semiconductor and the substrate.

Regarding claim 26, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a circuit board) having an upper surface;

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 27-29, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 30, Yamada discloses the wetting agent layer reduces surface tension of the active surface throughout the specification especially in col. 20, lines 34-65. Furthermore, it is noted that the coupling layer of Hoge is comprised of the identical material to the one in the instant invention, therefore the silane-based layer also having surface tension of the active surface reduced.

Regarding claim 31, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a circuit board) having an upper surface;

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36), said wetting layer having a thickness of a monolayer provided on the active surface of said semiconductor device/die (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 32-34, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 35, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a circuit board) having an upper surface;

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36 located on the active surface of said semiconductor device/die (207).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 36-38, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 39, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a wiring circuit board) having an upper surface having a plurality of circuits;

a plurality of bumps (203) connecting said plurality of bond pads on said active surface of said semiconductor device to said plurality of circuits on said upper surface of said substrate;

said plurality of bumps forming a gap between said semiconductor device and said substrate;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207) and on a upper surface of substrate (208; col. 56, lines 22-63 and col. 17, lines 53-59).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 40 and 44, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 41, Fig.54 of Yamada shows the underfill material substantially fills the gap between the semiconductor and the substrate.

Regarding claim 45, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface;

a substrate (202; a wiring circuit board) having an upper surface;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207) and on a upper surface of substrate (208; col. 56, lines 22-63 and col. 17, lines 53-59).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claims 46-47, Fig. 6B of Hoge discloses a wetting agent layer (60; a coupling agent layer) include at least one layer of glycidoxypropyltinethoxysilane (col. 5, lines 1-5).

Regarding claim 48, Fig.54 of Yamada shows a semiconductor die comprising:

a semiconductor device (or a die; 201) having an active surface having a plurality of bond pads (224);

a substrate (202; a wiring circuit board) having an upper surface having a plurality of circuits;

a plurality of bumps (203) connecting said plurality of bond pads on said active surface of said semiconductor device to said plurality of circuits on said upper surface of said substrate;

said plurality of bumps forming a gap between said semiconductor device and said substrate;

an underfill material (encapsulation resin; col. 56, lines 20-26) to fill the gap between said substrate and said semiconductor device (or between the substrate and the wetting agent layer);

a wetting agent layer (207, 208; a polymer layer excellent in wettability ; col. 54, lines 34-36) provided on the active surface of said semiconductor device (207) and on a upper surface of substrate (208; col. 56, lines 22-63 and col. 17, lines 53-59).

Fig. 54 of Yamada shows the most aspect of the instant invention except a wetting agent layer "comprising a layer of solely silane-based material with undergoes no substantial degradation thereof during one of a solder reflow process and a curing process for a material." Fig. 6B of Hoge shows a semiconductor device comprising a coupling agent layer (60; a wetting agent layer) of solely silane-based material (col. 5, lines 1-5) undergoing no substantial degradation thereof during one of a solder reflow process and a curing process for a material (col. 1, lines 49-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Hoge for the wetting agent layer of Yamada in order to have to the wetting agent layer comprised of a layer of solely silane-based material to promote the adhesion through utilizing a coupling material well known in the industry.

Regarding claim 49, Fig.54 of Yamada shows the underfill material substantially fills the gap between the semiconductor and the substrate.

Response to Arguments

Applicant's arguments filed June 29, 2005 have been fully considered but they are not persuasive.

Applicant argues, "Applicants assert that to establish a prima facie case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference; must teach or

suggest all of the claim limitations." It is pointed out that Yamada shows substantially the entire claimed structure except that a wetting agent layer is a silane based. In particular, Yamada discloses that the polymer layer 207, 208 is used for an excellent wettability with the resin (col. 54, lines 34-38). Hoge's reference is further referred to show that one of the polymer material for good wettability is silane-based and used to improve the bonding the chip to the adhesive (col. 4, lines 62-65). Therefore, a prima facie case of obviousness under 35 U.S.C. § 103 three basic criteria is established properly.

Applicant further argues that "Applicant asserts that any combination of the Yamada et al. reference and the Hoge et al. reference establish a prima facie case of obviousness under 35 U.S.C. § 103 regarding the 12 claimed inventions of independent claims 1, 6, 10, 14, 20, 23, 26, 31, 35, 39, 45, and 48 because any combination of such cited prior art, at the least, fails to teach or suggest all of the claim limitations of the claimed inventions and because the suggestion to make the claimed combination and the reasonable expectation of success are not found in the cited prior art but, are solely based on Applicant's disclosure." Examiner disagrees. It is pointed out that the instant invention recites that "a wetting agent layer of about a monolayer thickness thereon" or in claim 14, for example, that "a wetting agent layer provided on at least a portion of said active surface of said semiconductor device." These limitations imply that a single layer of wetting agent is on the active surface of the semiconductor surface. Yamada shows the polymer layers 207, 208, and each of these layer is single layered (having a monolayer thickness) while exhibiting a good wettability, therefore being a wetting agent layer to the resin. It is noted that the polymer layer 208 is formed on the substrate which meets the limitation of the instant invention, "a wetting agent layer provided on said upper surface of said substrate."

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Loke can be reached on (571) 272-1657. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmi

Steven Loke
Primary Examiner